



Amendment in Response to Office Action Dated 10/07/2002

With regard to examiners claim rejections under 35 U.S.C. 112 and 35 U.S.C. 103, an instruction to cancel the currently pending claims 1-20 and to add new claims 21-36, a clean version of the newly added claims, and a remarks section are attached hereto.

Deleted Claims and Newly Added Claims

~~Please cancel pending claims 1-20.~~

Add the following claims 21-36.

Claim 21(new) A method of determining the effectiveness of a nutritional food supplement by identifying the free radical scavenging efficiency of specific antioxidants present in the nutritional food supplement.

Claim 22(new) A process for determining the effectiveness of a nutritional food supplement by measuring the free radical scavenging efficiency of specific antioxidants present in the nutritional food supplement, said process comprising the steps of:

B1 introducing an organic dye reagent to a medium containing a free radical population to chemically tag the free radical population in said medium;

fluorometrically detecting and measuring the population of chemically tagged oxygen radicals in said medium;

introducing a nutritional formulation to said medium said nutritional formulation having specific antioxidant properties;

fluorometrically detecting and measuring the relative population of chemically tagged oxygen radicals in said medium; and

calculating the free radical scavenging efficiency of said nutritional formulation using chemically tagged oxygen radical population measurements.

Claim 23(new) The process of claim 22 wherein said organic dye reagent is 2-7 Dichlorofluorescein (H_2DCFDA).

Claim 24(new) The process of claim 22 further comprising the step of incubating said medium with an oxygen catalyst promoter to increase oxidative activity before detecting and measuring the population of chemically tagged oxygen radicals in said medium.

Claim 25(new) The process of claim 24 wherein said organic dye reagent has a chemical composition that diffuses through a cell membrane.

Claim 26(new) The process of claim 24 wherein said oxygen catalyst promoter is from the group consisting of H_2O_2 , peroxidase, transition metals, hydroxides and superoxides.

Claim 27(new) The process of claim 24 wherein said oxygen catalyst promoter is horseradish peroxidase.

Claim 28(new) An optical antioxidant sensing process for comparing the relative efficiency of a food-based antioxidant to an isolated form of the antioxidant comprising the steps of:

forming a control group comprising a medium containing a chemically tagged free radical population;

incubating a first portion of said medium with a sample of a food-based source nutritional formulation having a key antioxidant ingredient;

incubating a second portion of said medium with a sample of a nutritional supplement having said key antioxidant ingredient in isolated form;

fluorometrically measuring the free radical scavenging activity of said food-based source nutritional formulation in said first portion of said medium using an optical fiber sensor;

fluorometrically measuring the free radical scavenging activity of said

nutritional supplement in said second portion of said medium using an optical fiber sensor; and

comparing the efficiency of said food-based key antioxidant and said isolated form of said key antioxidant by comparing the free radical scavenging activity measurements of said food-based source nutritional formulation having said key antioxidant ingredient and said nutritional supplement having said key antioxidant ingredient in isolated form.

Claim 29(new) The optical antioxidant sensing process of claim 28 wherein said key antioxidant ingredient in isolated form is an isolated form of vitamin E.

Claim 30(new) A method of determining the effectiveness of a nutritional food supplement in a biological digestive system by measuring the free radical scavenging capability of the nutritional food supplement in an in-vitro model of a biological digestive system, said in-vitro model comprising an interactively connected stomach segment, small intestine segment, ascending colon segment, transverse colon segment and descending colon segment, whereby the intracellular free radical scavenging action produced by antioxidants in said nutritional food supplement is assayed in selected segments of said in-vitro model to determine the free radical scavenging efficiency of said nutritional food supplement in said biological digestive system.

Claim 31(new) A process for determining the effectiveness of a nutritional food supplement in a biological digestive system by measuring the free radical scavenging capability of said nutritional food supplement in an in-vitro model of a biological digestive system, said in-vitro model comprising an interactively connected stomach segment solution, small intestine segment solution, ascending colon segment solution, transverse colon segment solution and descending colon segment solution, whereby the intracellular free radical scavenging action produced by antioxidants in said nutritional food supplement is assayed in selected segment solutions to determine the free radical scavenging efficiency of said nutritional food supplement in said biological digestive system said process comprising the steps of:

introducing a functional food-based antioxidant sample to a first vessel containing a stomach segment solution;
pumping the resultant solution into a second vessel containing a small intestine segment solution;
pumping the resultant solution into a third vessel containing an ascending colon segment solution;
pumping the resultant solution into a fourth vessel containing a transverse colon segment solution;
pumping the resultant solution into a fifth vessel containing a descending colon segment solution; and
assaying solutions from said vessels to determine the free radical scavenging efficiency of said nutritional food supplement in said vessels.

Claim 32(new) The process of claim 31 wherein said small intestine segment solution includes a pancreatic fluid solution and a bile salt solution.

Claim 33(new) The process of claim 31 wherein said stomach segment solution has an acidic pH and said small intestine segment solution has an alkaline pH.

Claim 34(new) The process of claim 31 wherein said vessels are maintained at a normal body temperature of 98.6 degrees.

Claim 35(new) The process of claim 31 wherein said stomach segment solution is maintained at a pH of 2.

Claim 36(new) The process of claim 31 wherein said descending colon segment solution is maintained at a pH of 6.8.